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# DEVELOPMENT OF CONTRACTOR QUALITY ASSURANCE SYSTEM IN INDONESIAN PUBLIC WORKS PROCUREMENT REFORM

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***ABSTRACT*:** The present conditions of Indonesian public works indicate poor project performance, which is due to corruption, poor risk control, adversarial relationship, and low capacity of the parties involved in the project. There is a great need to improve public works project performance, so that the public works can adequately contribute to the country's socio-economic development. Current conditions indicate that public clients should encourage the lowest price awarded contractor to meet minimum requirements of contract specification, since unqualified awarded contractors have poor risk control ability, making it hard to achieve project minimum requirement. Therefore, public clients should open accessibility and give more opportunity to the "qualified participants" in public works procurement. This calls for a contractor quality assurance mechanism. This paper discusses the utilization of an integrated past performance information system so as to ensure that awarded contractor will provide best performance and take responsibility for risk control in the conduct of public works projects. By implementation of the proposed system, public clients might derive some advantages in the projects performance enhancement, such as improved accountability through transparent qualification evaluation, avoidance of employing contractors beyond the limits of their capacity, and increased trust and confidence in the communication among stakeholders.

***KEYWORDS***: competitiveness, performance, procurement, quality, risk

## 1. INTRODUCTION

One of the efforts that are considered to improve the public welfare in Indonesia is provision of good infrastructure that accelerates country development. Although the investment of public works in Indonesia tends to increase from year to year (Indonesia Statistic Center 2010), however, the growth of investment is not accompanied by performance improvement of public works project. In public works, particularly infrastructure projects, it has been difficult to reach the minimum quality requirements that are specified in each project plan. Other examples of poor performance are delay of work completion and increasing cost of the project. The poor project performance causes low value for money of investments. Performance improvement of an infrastructure project by an even few percentage would save billion dollars of value for money. Therefore, the achievement of good performance of public works project is very significant for supporting socio economic development of the country.

The government as a key stakeholder in the construction industry has been making various efforts to improve public works performance. However, the efforts have not shown significant impact to the project performance improvement.

Nowadays, Indonesian public works have been facing many problems throughout project lifecycle that are caused by uncontrolled risk. The government needs to change the direction of public works project performance improvement process that can derive solutions to share optimum benefits between parties involved in public works. The question that often arises in the performance improvement is what should be done next for the change process. The action of change in a comprehensive manner is required to enhance the project performance of Indonesian public works.

## 2. RESEARCH METHODOLOGY

In addition to the literature reviews on Indonesian public works condition, field observations are conducted to find the root problems of construction phases on two groups of projects, which are the public works services for facilities maintenance and infrastructure provision of a public university and the public works projects of a local government in Eastern Kalimantan Island. By studying the current construction project problems, the explanation of current phenomena in Indonesian public works can be found.

In order to get detail information on existing conditions, interviews were conducted to some key stakeholders that consist of the General Secretary of Construction Development Agency in the Ministry of Public Work, Board of Directors of Construction Service Development Board, the Directors of several local and foreign construction companies, the Directors of National Public Procurement Agency, academicians in construction management field, local public works procuring committee members, and the committee members of contractor associations and consultant association.

## 3. REVIEW OF RECENT CONDITIONS

Deming (1994) states that in order to improve the performance the management should work on a method for improvement of a process. The objectives are to understand and improve processes that produced the fault, defect, etc. and to understand the distinction between common causes of variation and special causes, thus to understand the kind of action to take. To improve performance of the ongoing public works project, therefore, it is needed to know the current status of Indonesian public works process. Based on the difference between the current state and the ideal conditions, research problem can be formulated in the concern of finding direction of problems solution.

### 3.1. The government report of current procurement reform in Indonesia

Realizing the need for improvements of the existing conditions, the Indonesian government makes various efforts to increase the performance of public works. One of the efforts focus is public procurement reforms.

Historically, the rule of public procurement in Indonesia has been going through several changes (Figure 1) since it was first formally issued in 1979. However, these changes have not solved the main problem of current poor performance condition, since it tended to focus on the legal procedure instead focus on performance.

Prior to 1998, Indonesia is in the ‘New Order' era, the period of centralized development with a strong tendency of collusion and nepotism when reforms cannot be run well. Therefore, the changed procurement rule includes detailed explanations of procedures and standard contracts just made in 2000.

However, this rule does not provide clear guidelines that resulted in different interpretations in its implementation. The different interpretation is often abused by the parties involved to pursue their personal interests, especially in the procurement process which is managed by the local government.

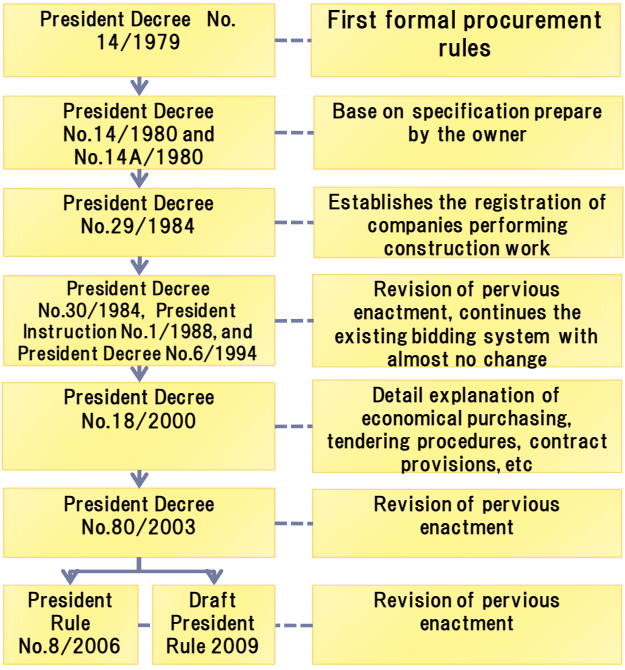

Figure 1: Changing of public works procurement rule in Indonesia (Larasati and Watanabe 2010)

At this point, the first evaluation was conducted by the World Bank in 2001. The issues that arise in this evaluation are as limited capacity of stakeholders and limited competition. The new decentralization regulations allow more than 300 local governments to establish their own arrangements for procurement with limited transparency and accountability that increase the risk of corruption.

The recommendations of the first evaluation result are responded through enactment of Presidential Decree 80/2003, which promotes basic principles of procurement of transparency, open and fair competition, efficiency, effectiveness, non-discrimination, and accountability. The main focus of the enacted rules is to solve the corruption problems, which is regarded as a significant cause of public works poor performance. Nowadays, the Presidential Decree 80/ 2003 has been changed four times. The last change by president rule is No.8 at 2006.

Then the performance evaluation of the Presidential Decree 80/2003 was conducted by the Organization for Economic Co-operation and Development (OECD) under Development Assistance Committee of Procurement Joint Venture at 2007 (Ministry of National Development Planning Agency 2007). The evaluation result showed that the procurement reform in Indonesia did not get optimum achievement yet.

The evaluation result indicated that the score of institutional development capacity, functional of public procurement market and appeals mechanism seems to be low, about 62% of success criteria of procurement reform that are established as an international Base-Line Indicator (BLI), which BLI optimum achievement is 100%. Therefore, the capacity improvement and improvement of transparency and accountability should be the focuses of the development of a new framework in the reform process.

Based on reports of the Head of Public Procurement Policy Development Agency of National Development Planning, Republic of Indonesia, the reform of public works procurement has started in 2003 and the results of the reform at 2007 namely are (Raharjo 2007):

- Public client opened up the bidding process to be more competitive. In some case more than 100 participants join in one tendering opportunity, with the bidders offering only 60% - 70% of the owner-estimated cost.
- Only a few institutions are practicing good procurement to achieve good performance.
- According to a monitoring body, less than 40% of public clients are conducting procurement as required under the regulation.
- The current system of law enforcement of Corruption Eradication Commission, the Attorney-General, and the Police has a deterrent effect, which makes many public clients reluctant to be the project leader or join the tendering committee if they do not understand and know government procurement well.

- A National Public Procurement Agency (NPPA) was established that dedicated to develop public procurement policy.

Based on the above description, a main focus of the reform process is combating corruption rather than improving performance in order to increase the value of public works investment. The reform process in Indonesia has shown change of expectations in reducing corruption. According to a survey by Transparency International (2005) for Global Corruption Barometer, 81% of Indonesian people think that corruption could be decreased over the next 3 years. Only 10% of respondents think that it will get worse. This level of optimism was the highest of all the countries surveyed by Transparency International.

Despite peoples' high expectation, study by the International Transparency in 2010 (TI Indonesia 2010) indicated that improvement process of corruption eradication is still slow in Indonesia. Jones (2007) points out that this slow process is due to sanctions rarely applied, also the clandestine nature of many transactions, and weak enforcement systems. A permissive attitude to corruption that permeates nearly all levels of government and business is another important factor.

In a series of reforms implemented, intensive efforts to reduce corruption had been made. However, efforts to improve project performance had been hardly taken. Root causes of this poor performance such as adversarial relationship among parties and lack of risk control ability for each party had never been dealt with. Hence, the reform has not generated expected results in improving performance of public works project.

In accelerating country development, Indonesia needs a reform with its definite and rapid implementation and involvement of all the parties. The reform efforts are expected to significantly improve the performance of public works project.

### 3.2. Current conditions of Indonesian construction industry

Data on National Construction Service Development Board (hereafter refers as "LPJK" 2010) shows that direct contribution of the industry to the gross national product (GDP) was about 11.6%. The industry employed 5-6% of the country's labor forces, which are about 7 million employees (LPJK 2011). The data also demonstrates that more than 93% of the workforces in the industry are unskilled labor. These conditions indicate that although the industry is very important in the country development, it tends to have poor capacity in conducting public works project since the quality of the labor involved mostly unskilled labor.

Furthermore, the industry has 160,736 registered contractors of which almost 99% are small and medium enterprises (LPJK 2011). Internal study of Construction Development Agency Ministry of Public Works indicates that about 40% of the registered contractors do not have experience in conducting construction project (based on interview result to the Secretary General of Construction Development Agency in 2010).

Results of observation of Indonesian public works by the principal author also found poor practices in project lifecycle which cause poor project performance (Larasati and Watanabe 2009). These poor practices relate to relational, financial, technical and legal aspects.

In public works procurement, the client hardly incorporates the contractor performance information which is needed to qualify and evaluate each contractor. This implies that the client awarded the contract to an inexperience contractor who is incapable of conducting a project. As the incapable contractor has a poor capability in controlling risk, there is often additional work, reworking, or delay due to uncontrolled risks. This condition has led to the emergence of an adversarial relationship.

Additionally, external factor of the economic crisis further lowers project performance. Due to the crisis, the price of construction commodity is increasing, which becomes one of the inflation sources. The crisis also forces the government to promote policy of budget savings by awarding the contract to the lowest bidder in public construction procurement. In this procurement scheme, the contractor is forced to bid at a very low price to be awarded in the procurement process.

The contactor is awarded at 86% of project budget in average in the low bid competition scheme (LKPP 2009). Furthermore, loss by corruption is estimated to be the range of 30% and 50% of the budget. It means that the construction firm tries to complete the project at between 56% and 36% of the budget. In this budget condition, the contractors have difficulties to survive in the industry with insufficient project return. Under insufficient project budget, the contractors often have poor cash-flow for providing material supply that causes delay in works completion. In many cases, the contractors are “forced” to lower quality of works in order to increase profit margins for surviving in this business. The contractors often make claim for additional works from which they expect to get more profit. Poor contractor performance and the claim attitude result in the mutual distrust relationship, raise many disputes that also lead to adversarial relationship.

Under the adversarial relationship, each party involved becomes to have different objective and motivation in conducting project which tend to be opposed each other. These differences become a fundamental source of lack cooperation, limited trust, and inefficient communication between parties in the public works project. Each party tries to pursue their-own benefit and has less intention in risk control throughout project lifecycle. Eventually the uncontrolled risks are "transformed" to additional cost and delay in project completion. The adversarial relationship also becomes a source of insufficient communication among stakeholders which results in increasing transaction cost.

These undesirable characteristics are more prevalent in local governments and local construction industry, since the majority of public investment is managed by the local government that relate to local business entity, especially small and medium enterprises. If the current undesirable characteristics are not changed, good performance of local public works and sound development of the local industry are difficult to achieve.

Figure 2 describes the vicious cycle associated with price based competitive bidding with insufficient past performance information, which causes poor performance of public works projects.

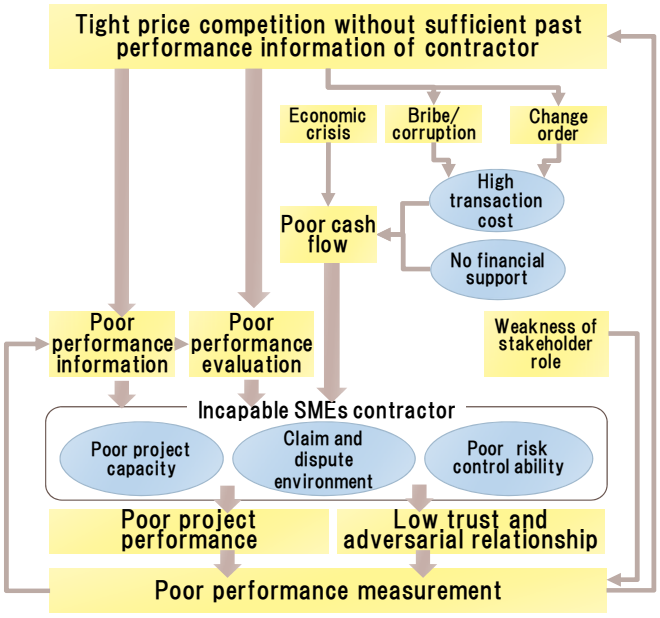


Figure 2: Vicious cycle of existing conditions

Changing this vicious cycle is needed to improve the performance of public works project in providing significant contribution for Indonesia development.

### 3.3. The contractor’s views of public procurement reform in Indonesia

According to the chairman of national association of Indonesian contractors (Kartasasmita 2006), the reform of public works procurement in

Indonesia has much room for improvement due to the existence of some causal factors such as misunderstanding and wrong perception of the prevailing regulations and the weakness of the key party's capacity in carrying out public procurement.

In the contractor's views, the proper implementation of regulations depends on the parties involved, especially the public client. The contractors believed that the procurement process conducted by the public client contribute to 90% of role in determining the success of the project (Kartasasmita 2006). Therefore, the reform of public procurement plays an important role in improving performance of public works project.

The Japan International Cooperation Agency study on Indonesian public works quality improvement through questionnaire survey to 450 contractors in Indonesia demonstrates that the contractors expect the government to strengthen its role in Indonesian public works (JICA 2010). The study shows that 76% of contractors ask public client to improve the transparency of procurement system, 64% of them ask the government to avoid unfair system, 71% of them expect the government to improve corporate management, and 71% of them ask government to reward good quality contractors. These expectations are an expression of the need of improvement of the current poor performance.

### 3.4. Research questions

Given the current conditions described in the previous section, several questions arise that relates to the needs in improving the performance of public works projects. Those are:

- What antecedent actions should be taken to give a change direction that eliminates negative consequence of fierce competition?
- What mechanism would decrease the inefficient transaction and uncontrolled risk?
- What actions should be taken to ensure the capacity and quality of stakeholders?
- What actions should be done to improve the poor risk control ability under adverse relationship that causes dispute and claim environment?
- What "change actions" could improve the performance of small and medium enterprises as the major business entity of the industry.

According to the research question, the intensive efforts should be made to change the existing conditions. However, the change would bring difficulty and even resistance in the implementation, because the existing conditions have a strong influence on thinking and behavioral patterns of each stakeholder. Therefore, theoretical approaches and lesson learned from the good practices of performance improvement strategies are also important in identifying the change direction that can be implemented and can provide advantages in the performance improvement process.

## 4. LITERATURE REVIEW

### 4.1. Component of construction industry performance

Bettis (Richie 2007) indicated that performance in industry is dependent on three components that are industry characteristics, strategic decisions and risk. Performance of construction industry sector also depends on these three components. In line with Bettis, Saqib et al. (2008) identified that decision making has stronger influence in determining the success of public works. Furthermore, the change theory of Deming (1994) stated that the success of the change process is related to stakeholders, especially for those who are closely associated with policy making. Since strategic decision, decision making, and policy making have strongly related to the public client and contractor, as key stakeholders. Therefore, the stakeholders have a significant role in

improvement process. Evaluation of stakeholder capacity and quality performance in decision making process become an important action in order to ensure the success of the public works.

In addition, the second component of industry performance is industry characteristic. In construction, 'change' is a defining the industry characteristic and is almost inevitable, since the life cycle of construction project consists of various types and phases that are unique and involve various parties. This characteristic put public works at high risk under uncertain conditions. It takes public works into an environment that is constantly changing.

Given that the third component of industry performance improvement is risk and the construction industry characteristic is also risk, hence, the critical component of performance improvement in construction industry consists of two components that are 1) strategic decision that relates to stakeholder and 2) risks.

In project management context, Niwa in 1989 and Wideman (1992) defined project risk as the chance of certain occurrences adversely affecting project objectives. Regarding the decision making, Flanagan and Norman (1993) stated that “a decision is made under risk when a decision maker (stakeholder) can assess the information about the probability of a particular event occurring. Therefore, Kashiwagi (2005) states that the availability of risk information is required to control risk during the public works project in the aim of achieving best value performance in public works investment.

However, the contractor as a key stakeholder in Indonesian public works have poor performance in risk control and the public client lack past performance information of risk control ability. This condition causes appearance of many risks during the public works projects which cannot be controlled by the parties involved.

Traditionally, in Indonesian construction procurement, owners seek to pass most of risks to the contractors. Risks themselves are not transferred, but actually, they transfer the responsibility of those risks (Jirapong 2004). Levitt and Ashley (1980) stated that allocation of construction risks between owners and their contractors has a significant impact on the total construction costs paid by owners. Inappropriate risk allocation, consequently, in this circumstance, all involved parties will suffer (Fisk 1997). Therefore, it needs to ensure that all key risk areas have been addressed and that the optimum procurement strategy has been selected.

Lo, et, al. (2009) indicated that in the lowest price procurement the contractor's ability to control risk and quality is generally not taken into account. In the lowest price procurement, according to Lo, et al., in order to be successful in the bidding many contractors may reduce their quote by reducing the quality of work, and obtain beyond-contractual rewards by "cutting corners" and making financial claims after initiating construction, both of which could negatively impact the quality of projects result. The shortcoming of a low-bid system is that it relies too heavily on price to evaluate contractors' competitiveness (Qin et.al 2010).

Indonesia should reform the existing price based procurement system and ensure the quality of awarded contractor. In the quality assurance scheme, it needs to conduct periodic performance assessments during the project procurement which not only provides a way to track contractor performance, but also encourages excellence in performance (US National institute of Health Environment Management System, NEMS 2005). Therefore, the contracting and program officials should consider past performance of each bidder in the evaluation and award of public works contract, evaluate contractor performance of how the awarded project is conducted, and feedback this performance information for future award decisions.

### 4.2. Lessons learned

Best practices of Japanese construction industry development indicated that during the high economic growth period, the competences of the contractors have been significantly enhanced. Contractors with good performance had been promoted. As well, the industry built a “mutual relationship” of pursuing a common goal of good works rather than adversarial relationship between the parties (Watanabe 2005).

During Japanese high economic growth the capacity of the private sector in Japan public works improved significantly (Watanabe, 2008). To ensure the performance, a designated system is managed by the Japanese public client based on cooperative relationship under reputation based system that is supported by societal assurance system and strong social sanctions system. According to Confalonieri (2007), reputation based approach is a mechanism to build and to maintain a good reputation in ensuring that collective action delivers socially desirable results.

The problems in Japanese public works arise when two types of illegal activities were revealed: politicians’ intervention into the public procurement and active involvement of many government officers with Dango, complementary and rotational bidding. The past performance evaluation on the designated competitive bidding systems is not considered transparent and less accountable. To enhance transparency and accountability, introduction of price competitive bidding was considered effective. However, there was a strong apprehension about deterioration of quality of public works due to excessive price competition. Then, the Industry moves to improve competitiveness and performance in the effort of increasing accountability and transparency. The Japanese government enacts the act for promoting quality assurance and introduces the comprehensive evaluation method, which is to evaluate not only price but technical proposal with past performance of each bidder. The industry is supported by construction information system under Japanese Construction Information Center (JACIC). JACIC (2008) has promoted and provided information sharing environment, where information generated in the process of infrastructure facility life cycle is managed in digital form and circulated through communication network while avoiding re-input and enabling retrieval for reuse information.

Two lessons are drawn from the reform of Japanese public procurement. The first one is the importance of the reputation-based procurement system to increase the transparency and accountability of public procurement in achieving best value performance while eliminating the negative consequence of price-based competitive bidding. The second one is effectiveness of an integrated performance evaluation system and the electronic record of performance information.

## 5. NEED ANALYSIS

Based on the description of the reviews of current conditions and the literature including the lessons learned, the following efforts are necessary to eliminate the negative impact of current priced-based procurement conditions by developing support systems:

1. Needs to consider the component of improvement process, which focuses on improvement of performance as well as enhancement of transparency and accountability in order to give more opportunity to qualified participants in contributing to the country development process with their best performance.
2. Therefore a system that can measure differences of performance of participants is needed in order to ensure that risks are allocated by the party who has good performance in managing risks.

3. The objectives of developing new systems are to ensure construction firm capabilities by requiring past performance information, to ensure standard quality of stakeholders by measuring performance, to reduce transaction cost by increasing efficiency through utilization of information system, and to improve trust through greater public confidence by involvement of all stakeholders and development of strong social sanction system in order to make an attitude of good performance achievement.
4. Needs to change the dispute and claim environment to a collaborative relationship and risk communication enhancement.
5. Needs to focus on small and medium enterprises, since the majority of business entities are SMEs whose poor capacities cause the current poor performance condition.

According to the needs analysis, in developing new strategy of construction performance improvement, the integrated procurement reform that focus on performance measurement becomes the main concern at the first stage of change action.

## 6. SYSTEM DEVELOPMENT

Based on current condition and literature reviews, reducing the risk is one component that can support the achievement of performance improvement. The development of integrated risk control mechanism throughout project lifecycle requires integrated past performance information. Target improvement of this action is to achieve optimum risk allocation in order to improve the controlled risk. In achieving the best value in the project, the parties involved should make efforts to optimize the risk allocation (Kashiwagi 2005).

In a public works project, each party tends to have different risk perception under uncertain conditions. Hence, the better communication of risk hopefully can minimize the differences of risk perception among stakeholders in order to increase the number of the risk that can be controlled and to decrease the cost allocation for risk response (Li 2007).

Therefore, an integrated system of risk control mechanisms that requires enhancement of risk communication in project procurement is developed based on problems analysis and needs analysis (Figure 3).

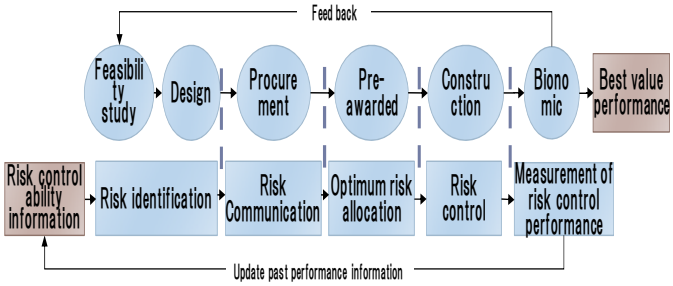

Figure 3: Development of risk control mechanism

In the proposed risk control mechanism, the communication process is expected to reduce the differences of risk perception that results in appropriate risk allocation in which the parties who are most able to control the risk do so. In this concept, each party is expected to be responsible for the risks that he/she can control. The objective is to empower all stakeholders to participate and give maximum contribution in accordance with its responsibilities in achieving good performance. The development of this concept is through chain action system for ensuring risk control capacity which is a cycle mechanism that provides input to previous activities and gives feedback to next activities. The cyclic system is an electronic past-performance information on procurement (e-PIC) which is developed based on reputation and best value procurement approach that also involve all stakeholders.

The e-PIC system consists of four sub-systems which are a registration and certification system of construction service enterprises and construction

engineer, e-procurement, comprehensive evaluation for bidding system, and performance measurement that is supported by technical standard system (Figure 4).

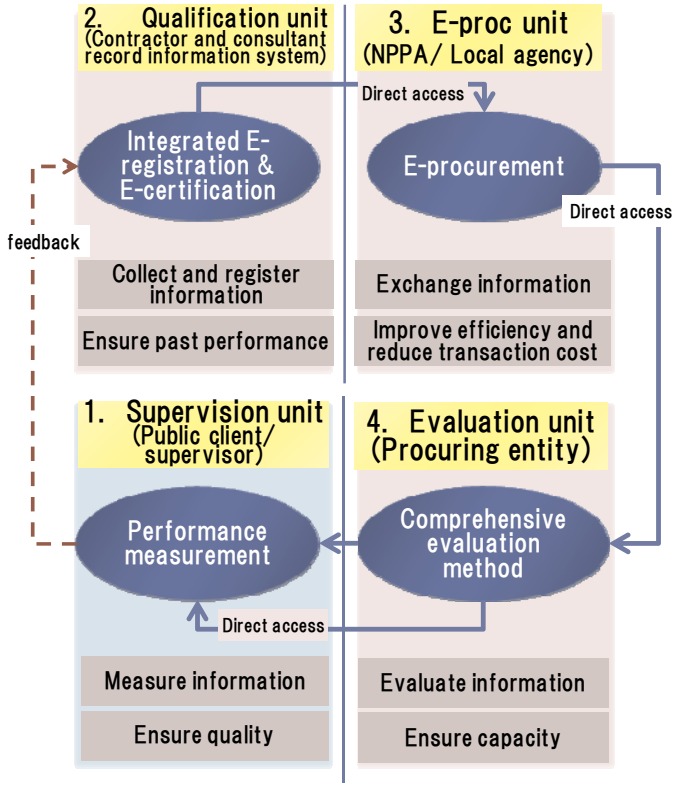


Figure 4: E-PIC system for contractor quality assurance mechanism

This system is an integrated system that the four sub-systems mutually support each other. The first action as a starting point of information collection could be performance measurement system that includes comprehensive performance measurement for legal, technical, financial, and social aspects that involves multi-parties and is supported by technical standard system. The measurement uses Information Technology (IT) system that directly links to evaluation system using a weight valuation system. The weight valuation system is based on risks identification result of the type of public works to be done. The objective of IT utilization system is to reduce inefficient activities and transaction cost by providing sufficient information sharing environment, managing information in digital form and circulating information through communication network, with avoiding re-input and enabling retrieval for reuse information.

In the implementation of this framework, it is necessary to involve all stakeholders in public works where the system is used by key stakeholders and linked to external stakeholders in order to provide support system (Figure 5).

Since the Small and Medium Enterprises are the majority of the construction firms that involve in public works projects, it is necessary to determine a change action that has minimum difficulty in implementation process for SMEs.

Results of questionnaire survey to 53 respondents in five stakeholder categories of academia, government, construction firm, NGO, and public community indicate that implementation and human resources problem are the main constraint in developing new system. Therefore improvement of stakeholder roles and relationship through capacity building and consensus building are necessary in order to encourage the advantages of system utilization by stakeholder.

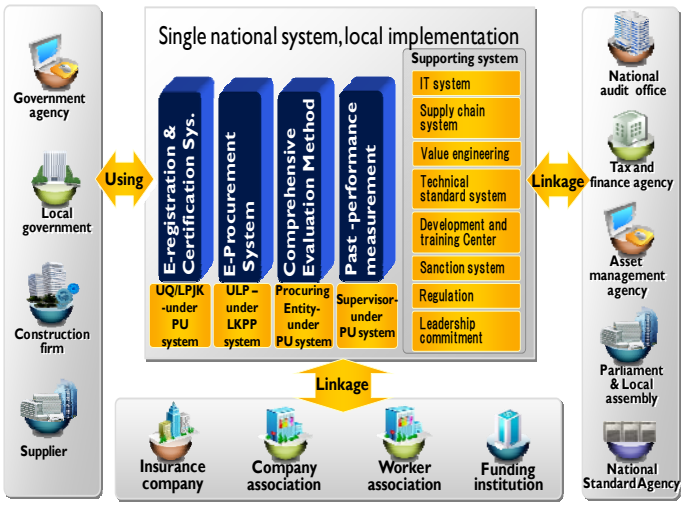


Figure 5: Past performance information system

## 7. CONCLUSION

To accelerate infrastructure development, some efforts are required in improving poor performance of public works. Currently many factors cause the poor performance of public works projects.

The analysis of problem formulation shows that the price bidding competition without performance measurement causes many problems of uncontrolled risks. The need analysis suggests that new procurement reform should focus on contractors' performance in order to give opportunity to the qualified participants in giving more contribution in country development process. Key points of the proposed change are integration risk control mechanism throughout project life cycle, utilization of past performance information in competitive procurement system, and improvement of stakeholder role and relationship.

The first stage of the proposed system focuses on developing past performance measurement process which involves multi-parties. This process is supported by technical standard system, utilization of IT system which integrates the process of exchanging information throughout the project life cycle. The development of infrastructure for the change process should consider the user adaptation and adoption which focuses on Small and Medium Enterprises.

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